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## Studies in North American Polygonaceae — II

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### ***Eriogonum xanthum* sp. nov.**

Perennial (section *Flava*), dwarf, closely pale-pubescent. Stems (caudices) closely tufted, densely leafy, the lower portions densely clothed with the persistent leaf-bases: leaves numerous, crowded; blades spatulate, 1–2.5 cm. long, obtuse, somewhat floccose and greenish above, more closely pubescent and gray beneath, rather slender-petioled: scapes 3–5 cm. tall, simple, pubescent, like the upper surface of the leaf-blades: bracts spatulate, quite similar to the leaves, but usually 1–1.5 cm. long: involucre nearly sessile, capitate, turbinate, ultimately ribbed, about 4 mm. long; lobes triangular, about one fourth as long as the tube: calyxes yellow, becoming 8 mm. long, including the stipe-like base, which is about 1.5 mm. long, silky-pubescent without; lobes spatulate or the outer ones pandurate-spatulate: filaments copiously villous below the middle: ovary sparingly pubescent at the top; styles sparingly pubescent at the base: achenes about 5.5 mm. long.

Collected on Mt. Harvard, Colorado, August 17, 1896, by C. L. Shear, no. 3789 (type), and on Gray's Peak, Colorado, August, 1873, by Mr. Woolson.

Related to both *Eriogonum flavum* and *E. aureum*, but differing from both of them in its longer slender base of the perianth and the glabrous, persistent leaf-bases.

### ***Eriogonum umbelliferum* sp. nov.**

Perennial, with woody branching rootstocks (section *Umbellata*), bright-green. Stems represented by short caudices: leaves crowded on the caudices; blades spatulate to elliptic or oval, 1–4 cm. long, or rarely longer, glabrous or nearly so at maturity, except the floccose-ciliate margins, slender-petioled: scapes 6–28 cm. tall, each topped with a 2–6-rayed umbel, which is subtended by a whorl of foliaceous bracts: peduncles mainly 1–2 cm. long and closely pubescent during anthesis, larger and thinly pubescent at maturity: involucre campanulate, sometimes becoming turbinate-campanulate, 2–2.5 mm. long, the lobes fully as long as the tube and strongly reflexed: calyxes yellow or sometimes redtinged in age, about 8 mm. long at maturity, including the stipe-

like base, which is 2–2.5 mm. long; lobes spatulate to oblong-obovate, the inner becoming markedly longer than the outer: filaments copiously villous from above the middle to the base: ovary sparingly pubescent at the top; styles pubescent at least below the middle: achenes about 5 mm. long, the beak fully as long as the body, which is decidedly constricted at the base.

The type was collected west of Ouray, Colorado, September 9, 1901, by *L. M. Underwood*, no. 177 b. The species is apparently common in Colorado and has been collected in two other States, viz.:

WYOMING: Fort Bridger, July, 1873, *Porter*. Elk Mt., July, 1899, *Little & Stanton* 171. Fort Steele, May and June, 1901, *Tweedy* 4396. Copperton, June, 1901, *Tweedy* 4395. UTAH: Wasatch Mts., August, 1879, *Jones* 1411 and August, 1900, *Stokes*.

This species differs from its nearest relative, *Eriogonum umbellatum*, chiefly in its longer and more slender-stalked calyx and glabrous or nearly glabrous leaves.

#### ***Eriogonum Tetraneuris* sp. nov.**

Perennial (section *Lachnogyna*), silvery-gray and silky-tomentose. Stems (caudices) tufted, very densely leafy, 1–4 cm. long, the older portions thickly clothed with old dilated leaf-bases: leaves crowded; blades elliptic to oblong, 1–3 cm. long, acute or acutish, paler and more densely pubescent beneath than above; petioles as long as the blades or shorter, ciliate and dilated below: scapes 1–1.5 dm. tall, conspicuously more densely pubescent near the top than below, simple or rarely branched, the branch subtended by a leaf-like bract: involucre sessile, capitate, subtended by lanceolate or triangular bracts, campanulate, about 3.5 mm. long, silky; lobes ovate, obtuse, about one third as long as the tube: calyxes lemon-yellow, about 6 mm. broad, silky without; lobes oblong or oblong-cuneate, the inner rather broader than the outer: filaments sparingly villous at the base: ovary densely pubescent; styles glabrous: achenes not seen.

Collected near Pueblo, Colorado, May 15, 1900, by *P. A. Rydberg & F. K. Vreeland*, no. 6324.

Related to *Eriogonum lachnogynum* but with capitate inflorescence, and in this resembling *E. villiflorum*. The involucre is slightly longer than those of *E. lachnogynum* and the calyx-lobes are not contracted below the middle. The pubescence of the

upper part of the peduncle and that of the involucre is more appressed and silky than the pubescence of *E. lachnogynum*.

***Eriogonum orthocaulon* sp. nov.**

Perennial with woody rootstock and caudices which are densely leafy at the ends (section *Heterosepala*). Leaves usually numerous; blades typically oval, mostly 1–1.5 cm. long, or rarely smaller, densely felty-pubescent, but usually rather more thinly so above than beneath, terminating long curved or somewhat curled petioles: scapes mainly 1–3 dm. long, simple, floccose, each terminating in a head of several involucre, which is subtended by minute or thick-subulate bracts: involucre turbinate, sometimes angled and thus turbinate-obpyramidal, about 7 mm. long, prominently ribbed, floccose, the lobes mostly broader than long and much shorter than the tube: calyxes ochroleucous, becoming 4.5–5 mm. long, the outer sepals suborbicular to ovate-orbicular, the inner linear-cuneate to pandurate, about as long as the outer: filaments slightly pubescent at the base: ovary and styles glabrous: achenes not seen.

The type was collected at Rifle, Garfield county, Colorado, June 23, 1900, by *Geo. E. Osterhout*, no. 2125. Specimens have been collected elsewhere as follows:

IDAHO: Foothills, June, 1892, *Mulford*. Blue Lakes, June 2, 1893, *Palmer 62*. Idaho Falls, July 4, 1901, *Merrill & Wilcox 782*. UTAH: Salt Lake City, May, 1869, *Watson 1016*. ALBERTA: Crow Nest Pass, August, 1897, *Macoun 24480* and *24481*.

This species is related to *Eriogonum ovalifolium* and *E. ochroleucum*, but from both of these it may be distinguished by the large involucre.

***Eriogonum coloradense* sp. nov.**

Perennial (section *Capitata*). Depressed stems branched at the base; branches tufted, 1–4 cm. long, clothed with the persistent leaf-bases: leaves crowded; blades narrowly spatulate to linear-spatulate, 2–5 cm. long, blunt, slightly revolute, webby-pubescent above or at length glabrous, densely white lanate-tomentose beneath, except the prominent midrib, narrowed into petiole-like bases which are dilated and scarious at the base: peduncles simple, mostly surpassed by some of the leaves, relatively stout, lanuginous, the pubescence becoming floccose: involucre in heads terminating the peduncle, campanulate, about 5 mm. long, thinly woolly without; lobes suborbicular or nearly reniform, barely one

third as long as the tube: calyxes pink or pinkish, fully 4 mm. long at maturity; lobes blunt, the outer broadly ovate or orbicular-ovate, the inner smaller than the outer, oblong, the midrib vanishing below the apex: filaments slightly pubescent near the base: ovary and styles glabrous: achene 3-angled.

Collected on Mt. Harvard, Colorado, 1896, by *Frederic E. Clements*, no. 66.

Related to *Eriogonum pauciflorum*, but stouter and larger in all of its parts. The peduncles are mostly shorter than the leaves, which generally have flat instead of strongly revolute blades. The involucre of this species is narrower and much longer than that of *E. pauciflorum* and has the tube proportionally longer and the lobes proportionally shorter. The calyx too is at least one millimeter longer than that of *E. pauciflorum*.

#### ***Eriogonum nudicaule* (Torr.)**

*Eriogonum effusum nudicaule* Torr. Pacif. R. R. Rep. 4: 132. 1857.

Related to *Eriogonum lonchophyllum* T. & G., differing in the larger calyx, the campanulate involucre and the revolute leaf-blades.

#### ***Eriogonum scoparium* sp. nov.**

Perennial, with woody rootstocks and more or less elongated caudices (section *Corymbosa*). Leaves rather few on each caudex, but sometimes apparently numerous on prolifically branched plants; blades linear to linear-spatulate, 2–5 cm. long, revolute, at least in age, densely lanate beneath, floccose above, relatively short-petioled, the sheathing bases of the petioles very densely woolly: scapes mainly 1–2 dm. tall, glabrous, glaucescent, each topped with a compound open cyme, the bracts very small, the lower ones often subulate-tipped: involucre broadly campanulate, 2.5–3 mm. long, and about as wide at the mouth, the lobes broad, decidedly shorter than the tube: calyxes pink or whitish, becoming 3.5–4 mm. long, the lobes oblong to obovate: filaments pubescent at the base: ovary and styles glabrous: achenes 2.5 mm. long.

The type was collected at Gunnison, Colorado, September 12, 1901, by *Underwood & Selby*, no. 376; other collections from Colorado are as follows: Gunnison, July 7, 1901, *Baker* 254. Denver, September, 1892, *Eastwood*.

This species may be distinguished from *Eriogonum nudicaule*

and *E. lonchophyllum* by the long-peduncled involucre in the forks of the inflorescence and from *Eriogonum salicinum* and the following species by its campanulate involucre.

***Eriogonum tristichum* sp. nov.**

Perennial with woody rootstocks and somewhat elongated caudices (section *Corymbosa*). Leaves rather few on each caudex ; blades narrowly linear, oblanceolate or linear, 2–7 cm. long, usually revolute, floccose above, densely white-woolly beneath ; sheathing bases of the petioles very densely white-woolly : scapes mainly 1–3 dm. tall, glabrous, except at the base, glaucescent, each topped with a compound cyme, the bracts very small except sometimes those at the first fork of the inflorescence : involucre turbinate, 2.5–3 mm. long, decidedly longer than thick, the lobes broadly rounded, much shorter than the tube : calyxes pink or whitish, becoming 4 mm. long, the lobes obovate to oblong-obovate : filaments sparingly pubescent at the base : ovary and styles glabrous : achenes about 2.5 mm. long.

The type was collected at Rosa, Colorado, June, 1899, by *C. F. Baker*, no. 286 ; other specimens have been collected in Colorado as follows : Black Cañon, Gunnison, September 1888, *Parry*. Mesa Verde, September, 1892, *Eastwood*. Arboles, June, 1899, *Baker*, 287. Parlin, August, 1891, *Smith*, 53. *Eriogonum tristichum* differs from its nearest relative, *E. salicinum*, in its larger and relatively longer involucre and the strongly revolute leaf-blades.

***Eriogonum Fendlerianum* (Benth.)**

*Eriogonum microthecum Fendlerianum* Benth. in DC. Prodr. **14** : 18. 1856.

This species is related to both *Eriogonum corymbosum* and the following species but may be easily distinguished from either by its larger involucre.

***Eriogonum divergens* nom. nov.**

*Eriogonum corymbosum divaricatum* T. & G. Pacif. R. R. Rep. **2** : 129. 1855. Not *E. divaricatum* Hook.

Like the preceding, this species is related to *Eriogonum corymbosum*, from which it may be distinguished by the larger more prominently lobed and scattered involucre, and the stiffly spreading branches of the inflorescence.

**Eriogonum fusiforme** sp. nov.

Annual (section *Pedunculata*), glaucous. Leaves spreading; blades suborbicular, 1–5 cm. in diameter, rounded or bluntly apiculate at the apex, with scattered hairs on both surfaces, or hirsute beneath, hirsute-ciliate; petioles longer than the blades, or shorter, hirsute: scapes solitary or tufted, 2–5 dm. tall, markedly inflated below the several or many inflorescence-branches: peduncles capillary, spreading, many times longer than the involucre, abruptly bent at the base: involucre turbinate, barely 1 mm. long, the lobes ovate, shorter than the tube: calyxes white or mainly so; lobes ovate, becoming 1.5 mm. long, closely pubescent: filaments glabrous: ovary and styles glabrous: achenes about 2 mm. long, the tips exserted.

Type collected at Grand Junction, Colorado, June 20, 1893, by *De Alton Saunders*; the species is also represented by the following specimens:

COLORADO: Palisade, May 29, 1894, *Crandall*. UTAH: St. George, 1877, *Palmer* 434. Bluffs near Green River, June 15, 1901, *Stokes*. ARIZONA: Peach Springs, June 28, 1887, *Tracy & Evans* 315.

This species differs from *Eriogonum inflatum*, its nearest relative, in the much smaller turbinate and few-flowered involucre and the usually numerous large and divaricate accessory inflorescence-branches.

**Polygonum buxiforme** nom. nov.

*Polygonum littorale* Small, Mem. Dept. Bot. Columbia Coll. 1: 102. (excl. synonym.) 1895. Not *P. littorale* Link.

**Polygonum rubescens** sp. nov.

Perennial or sometimes annual, glabrous, bright-green. Stems ultimately branched at the base and above it, the branches ascending or spreading, 1–5 dm. long, striate: leaves scattered; blades thickish, narrowly oblong to elliptic or nearly linear, mainly 1–2.5 cm. long; ocreae silvery, or brown at the base, at length lacerate: flowers usually several in a cluster: calyxes becoming 3 mm. long; lobes with whitish or pinkish margins: achenes triquetrous, 2–2.5 mm. long, dull and distinctly granulate or striate.

Type collected in sandy soil at Parlin, Gunnison County, Colorado, August 16, 1901, by *B. H. Smith*, no. 55; other specimens belonging here are as follows:

COLORADO: Larimer County, June 17, 1895, *Cowen*. IDAHO:

Kootenai County, August 26, 1892, *Sandberg, MacDougal & Heller* 966. NEVADA : Unionville, September 1867, *Watson* 1055.

A species related to *Polygonum ramosissimum*, from which however it differs in the smaller whitish or pinkish margined calyx-lobes and the smaller and rougher achene.

***Persicaria omissa* (Greene)**

*Polygonum omissum* Greene, *Pittonia* 5 : 200. 1903.

This species is known from both Kansas and Colorado.

***Bistorta bistortoides* (Pursh)**

*Polygonum bistortoides* Pursh, *Fl. Am. Sept.* 271. 1814.

*Polygonum Bistorta oblongifolium* Meisn in DC. *Prodr.* 14 : 126. 1856.

This species of *Bistorta* is common in the mountains of Colorado and also in the neighboring states.

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